

Overview

HP HSR6800 Router Series

Key features

- High-performance services with up to 420 Mpps forwarding and 2 Tbps switching capacity
- Multicore, distributed processing architecture
- Comprehensive routing, switching, and security
- High-density WAN connections
- Carrier-class resiliency

Product overview

WAN services routers that are ideal for large-scale data center and campus WAN networks.

These routers are built with a multicore distributed processing architecture that scales up to 420 Mpps forwarding and up to 2 Tbps switch capacity. They deliver robust routing (MPLS, IPv4, IPv6, dynamic routing, and nested QoS), security (stateful firewall, IPSec/Dynamic VPN, DoS protection, and NAT), full Layer 2 switching, traffic analysis capabilities, and high-density 10GbE (and 40/100 GbE-ready) WAN interface options—all integrated in a single high-performance routing platform.

Features and benefits

Connectivity

- **Multiple WAN interfaces**
support Fast Ethernet/Gigabit Ethernet/10GbE ports, OC3~OC48 POS/CPOS, and ATM ports
- **Flexible port selection**
provides a combination of fiber/copper interface modules, 100/1000BASE-X auto-speed selection, and 10/100/1000BASE-T auto-speed detection plus auto duplex and MDI/MDI-X; is speed adaptable between 155 M POS/622 M POS/Gigabit Ethernet
- **Loopback**
supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility

Performance

- **High-performance platform**
provides up to 420 Mpps in forwarding and up to 2 Tbps switching capacity

Resiliency and high availability

- **Separate data and control planes**
provide greater flexibility and enable continual services
- **Hot-swappable modules**
facilitate the replacement of hardware interface modules without impacting the traffic flow through the system
- **Optional redundant power supply**
provides uninterrupted power; allows hot-swapping of one of the two supplies when installed
- **Virtual Router Redundancy Protocol (VRRP)**
allows groups of two routers to dynamically back each other up to create highly available routed environments
- **Graceful restart**
features are fully supported, including graceful restart for OSPF, IS-IS, BGP, LDP, and RSVP; the network remains stable during the active-standby switchover; after the switchover, the device quickly learns the network routes by

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- communicating with adjacent routers; forwarding remains uninterrupted during the switchover to achieve nonstop forwarding (NSF)
- Hitless software upgrades**
allow patches to be installed without restarting the device, increasing network uptime and simplifying maintenance
- IP Fast Reroute Framework (FRR)**
nodes are configured with backup ports and routes; local implementation requires no cooperation of adjacent devices, simplifying the deployment; solves the traditional convergence faults in IP forwarding; achieves restoration within 50 ms, with the restoration time independent of the number of routes and fast link switchovers without route convergence

Product architecture

- Distributed processing**
two kinds of engines are hardware-separated: main controller engine (routing engine) and service engines (Flexible Interface Platform [FIP] and Service Aggregation Platform [SAP]); the main controller engine is used for route computing and system management, and service engines are used for processing services
- HP Apollo Processor**
is an HP in-house designed service/forwarding processor that supports powerful parallel processing, encryption, and comprehensive HQoS functionalities

Layer 3 routing

- Static IPv4 routing**
provides simple, manually configured IPv4 routing
- Routing Information Protocol (RIP)**
uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- Open Shortest Path First (OSPF)**
Interior Gateway Protocol (IGP) uses link-state protocol for faster convergence; supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- Border Gateway Protocol 4 (BGP-4)**
Exterior Gateway Protocol (EGP) with path vector protocol uses TCP for enhanced reliability for the route discovery process, reduces bandwidth consumption by advertising only incremental updates, and supports extensive policies for increased flexibility, as well as scales to very large networks
- Intermediate system to intermediate system (IS-IS)**
Interior Gateway Protocol (IGP) uses path vector protocol, which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- Static IPv6 routing**
provides simple, manually configured IPv6 routing
- Dual IP stack**
maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- Routing Information Protocol next generation (RIPng)**
extends RIPv2 to support IPv6 addressing
- OSPFv3**
provides OSPF support for IPv6
- BGP+**
extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- IS-IS for IPv6**
extends IS-IS to support IPv6 addressing
- IPv6 tunneling**
is an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels
- Multiprotocol Label Switching (MPLS)**

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- uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, which reduces complexity and increases performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**
allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**
establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Policy routing**
allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **Multicast VPN**
supports Multicast Domain (MD) multicast VPN, which can be distributed on separate service cards, providing high performance and flexible configuration
- **Virtual Private LAN Service (VPLS)**
establishes point-to-multipoint Layer 2 VPNs across a provider network
- **Bidirectional Forwarding Detection (BFD)**
enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, and MPLS
- **IGMPv1, v2, and v3**
allow individual hosts to be registered on a particular VLAN
- **PIM-SSM, PIM-DM, and PIM-SM (for IPv4 and IPv6)**
support IP Multicast address management and inhibition of DoS attacks
- **Equal-Cost/Unequal-Cost Multipath (ECMP/UCMP)**
enables multiple equal-cost and unequal-cost links in a routing environment to increase link redundancy and scale bandwidth
- **OSPFv3 MCE**
Multi-VPN-Instance CE (MCE) binds different VPNs to different interfaces on one single CE; the OSPFv3 MCE feature creates and maintains separate OSPFv3 routing tables for each IPv6 VPN to isolate VPN services in the device

Layer 3 services

- **Address Resolution Protocol (ARP)**
determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **User Datagram Protocol (UDP) helper**
redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Domain Name System (DNS)**
provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and server
- **Dynamic Host Configuration Protocol (DHCP)**
simplifies the management of large IP networks

Security

- **Dynamic Virtual Private Network (DVPN)**
collects, maintains, and distributes dynamic public addresses through the VPN Address Management (VAM) protocol, making VPN establishment available between enterprise branches that use dynamic addresses to access the public network; compared to traditional VPN technologies, DVPN technology is more flexible and has richer features, such as NAT traversal of DVPN packets, AAA identity authentication, IPSec protection of data packets, and multiple VPN domains
- **Group Domain Virtual Private Network (GDVPN)**

Overview

is a tunnel-less VPN technology that allows for native end-to-end security for a full meshed network; is suitable for an enterprise running encryption over a private Multiprotocol Label Switching (MPLS)/IP-based core network, as well as for encrypting multicast traffic

- **Stateful VPN firewall**
provides enhanced stateful packet inspection and filtering; supports flexible security zones and virtual firewall containment; delivers advanced VPN services with Triple DES (3DES) and Advanced Encryption Standard (AES) encryption at high performance and low latency; offers Web content filtering; allows for application prioritization and enhancement
- **Access control list (ACL)**
supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **Unicast Reverse Path Forwarding (URPF)**
allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks; supports distributed UPF
- **Secure shell (SSHv2)**
uses external servers to securely log in to a remote device; with authentication and encryption, it protects against IP spoofing and plain-text password interception; increases the security of Secure FTP (SFTP) transfers
- **Remote Authentication Dial-In User Service (RADIUS)**
eases switch security access administration by using a password authentication server
- **Terminal Access Controller Access-Control System (TACACS+)**
is an authentication tool using TCP with encryption of the full authentication request, which provides additional security
- **Network address translation (NAT)**
supports repeated multiplexing of a port and automatic 5-tuple collision detection, enabling NAPT to support unlimited connections; supports blacklist in NAT/NAPT/internal server, a limit on the number of connections, session log, and multi-instance

Quality of Service (QoS)

- **HQoS/Nested QoS**
allows for precise and flexible traffic classification and scheduling
- **Traffic policing**
supports Committed Access Rate (CAR) and line rate
- **Congestion management**
supports FIFO, PQ, CQ, WFQ, CBQ, and RTPQ
- **Congestion avoidance**
Weighted Random Early Detection (WRED)/Random Early Detection (RED)
- **Other QoS technologies**
support traffic shaping, FR QoS, MPLS QoS, and MP QoS/LFI

Management

- **Industry-standard CLI with a hierarchical structure**
reduces training time and expenses, and increases productivity in multivendor installations
- **SNMPv1, v2, and v3**
provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **Management interface control**
each of the following interfaces can be enabled or disabled depending on security preferences: console port, telnet port, or reset button
- **Remote monitoring (RMON)**
uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **Management security**

Overview

multiple privilege levels with password protection restrict access to critical configuration commands; ACLs provide telnet and SNMP access; local and remote syslog capabilities allow logging of all access

- **FTP, TFTP, and SFTP support**
FTP allows bidirectional transfers over a TCP/IP network and is used for configuration updates; Trivial FTP is a simpler method using User Datagram Protocol (UDP)
- **Debug and sampler utility**
supports ping and traceroute for both IPv4 and IPv6
- **Network Quality Analyzer (NQA)**
analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays and file transfer rates; allows a network manager to determine overall network performance and to diagnose and locate network congestion points or failures
- **Network Time Protocol (NTP)**
synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Info center**
provides a central information center for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules

Multicast support

- **Internet Group Management Protocol (IGMP)**
is used by IP hosts to establish and maintain multicast groups; supports v1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks
- **Protocol Independent Multicast (PIM)**
is used for IPv4 and IPv6 multicast applications; supports PIM Dense Mode (PIM-DM), Sparse Mode (PIM-SM), and Source-Specific Mode (PIM-SSM)
- **Multicast Source Discovery Protocol (MSDP)**
is used for interdomain multicast applications, allowing multiple PIM-SM domains to interoperate
- **Multicast Border Gateway Protocol (MBGP)**
allows multicast traffic to be forwarded across BGP networks separately from unicast traffic

Additional information

- **Unified HP Comware operating system with modular architecture**
all switching, routing, and security platforms leverage the Comware OS, a common unified modular operating system; provides an easy-to-enhance-and-extend feature set that doesn't require wholesale changes

Warranty and support

- **1-year warranty**
with advance replacement and 10-calendar-day delivery (available in most countries)
- **Electronic and telephone support**
limited electronic and telephone support is available from HP; to reach our support centers, refer to www.hp.com/networking/contact-support; for details on the duration of support provided with your product purchase, refer to www.hp.com/networking/warrantysummary
- **Software releases**
to find software for your product, refer to www.hp.com/networking/support; for details on the software releases available with your product purchase, refer to www.hp.com/networking/warrantysummary

Configuration

Build To Order:

BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

Models

HP HSR6802 Router Chassis

JG361A

- 2 SAP slots or 4 HIM slots or 8 MIM slots, or a combination
- 2 MPU (for management modules) slots
- Must select min 1 MPU
- Must select min 1 Power Supply
- 5U - Height

HP HSR6804 Router Chassis

JG362A

- 4 SAP slots or 8 HIM slots or 16 MIM slots, or a combination
- 2 MPU (for management modules) slots
- Must select min 1 MPU
- Must select min 1 Power Supply
- 7U - Height

HP HSR6808 Router Chassis

JG363A

- 8 SAP slots or 16 HIM slots or 32 MIM slots, or a combination
- 2 MPU (for management modules) slots
- 1 switch fabric slot
- Must select min 1 MPU
- Must select min 2 Power Supply
- 20U - Height

Box Level Integration CTO Models

CTO Solution Sku

HP HSR68xx CTO Router Solution

JG678A

- SSP trigger sku

CTO Switch Chassis

HP HSR6802 Router Chassis

JG361A

See Configuration
Note:1

- 2 SAP slots or 4 HIM slots or 8 MIM slots, or a combination
- 2 MPU (for management modules) slots
- Must select min 1 MPU
- Must select min 1 Power Supply
- 5U - Height

HP HSR6804 Router Chassis

JG362A

- 4 SAP slots or 8 HIM slots or 16 MIM slots, or a combination

See Configuration

Configuration

- 2 MPU (for management modules) slots Note:1
- Must select min 1 MPU
- Must select min 1 Power Supply
- 7U - Height

HP HSR6808 Router Chassis

JG363A

- 8 SAP slots or 16 HIM slots or 32 MIM slots, or a combination
- 2 MPU (for management modules) slots
- 1 switch fabric slot
- Must select min 1 MPU
- Must select min 2 Power Supply
- 20U - Height

See Configuration Note:1

Note 1 If the Router Chassis is to be Box Level Factory Integrated (CTO), Then the #0D1 is required on the Router Chassis and integrated to the JG678A - HP HSR68xx CTO Router Solution . (Min 1/Max 1 Switch per SSP)

Rack Level Integration CTO Models

HP HSR6802 Router Chassis

JG361A

- 2 SAP slots or 4 HIM slots or 8 MIM slots, or a combination
- 2 MPU (for management modules) slots
- Must select min 1 MPU
- Must select min 1 Power Supply
- 5U - Height

See Configuration Note:2

HP HSR6804 Router Chassis

JG362A

- 4 SAP slots or 8 HIM slots or 16 MIM slots, or a combination
- 2 MPU (for management modules) slots
- Must select min 1 MPU
- Must select min 1 Power Supply
- 7U - Height

See Configuration Note:2

HP HSR6808 Router Chassis

JG363A

- 8 SAP slots or 16 HIM slots or 32 MIM slots, or a combination
- 2 MPU (for management modules) slots
- 1 switch fabric slot
- Must select min 1 MPU
- Must select min 2 Power Supply
- 20U - Height

See Configuration Note:2

Configuration Rules

Note 1 If HP CTO Router Chassis, with AC Power, is selected to be Rack Level Integration (No SSP Sku), Then #B2B, or #B2C is Required on the AC Power Supply's. (Optional when Router is not Factory Racked. See Drop down remark in "Power Supplies" section.)

Note 2 If HP CTO Router Chassis is selected to be Rack Level Integration, Then the Router Chassis needs to integrate (with #0D1) to the HP Universal Rack.

Internal Power Supplies

Configuration

(JG361A and JG362A Only) - System (std 0 // max 2) User Selection (min 1 // max 2) per router

(JG363A Only) System (std 0 // max 4) User Selection (min 2 // max 4) per router

HP HSR6800 1200W DC Power Supply

JG334A

See Configuration
Note:1

HP HSR6800 1200W AC Power Supply

JG335A

See Configuration
Note:1, 2, 4

PDU Cable NA/MEX/TW/JP

JG335A#B2B

- C19 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW

JG335A#B2C

- C19 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord

JG335A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 6616 650W DC Router Power Supply

JC493A

See Configuration
Note:1

HP 6616 650W AC Router Power Supply

JC492A

See Configuration
Note:1, 2, 4

PDU Cable NA/MEX/TW/JP

JC492A#B2B

- C19 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW

JC492A#B2C

- C19 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord

JC492A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

Configuration Rules

Note 1

If more than 1 power supply is selected they must all be the same Sku number.

Note 2

Localization required on orders without #B2B, #B2C or #B2E options.

Configuration

Note 4	If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in NA, Mexico, Taiwan and Japan)
Remarks	"Drop down under power supply should offer the following options and results: Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO) Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO) High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)"

Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

Modules

Management Module

System (std 0 // max 2) User Selection (min 1 // max 2)

HP HSR6800 RSE-X2 Router MPU	JG364A
• 2 - 2GB DDR3 SDRAM Included (JG482A) • 2 CF Memory slots: (Min 0 // Max 1)	See Configuration Note:1

Russian Reduced Encryption JG364A#A59

Note 1	If this product is ordered for delivery to Russia, it must be ordered with the A59 option (also allowed for other countries desiring Low Encryption), then #A59 is the required option for BTO, and must be added in addition to #0D1 for CTO.
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Service Modules (SAP)

(JG361A Router Only) System (std 0 // max 2) User Selection (min 0 // max 2) per router

(JG362A Router Only) System (std 0 // max 4) User Selection (min 0 // max 4) per router

(JG363A Router Only) System (std 0 // max 8) User Selection (min 0 // max 8) per router

HP HSR6800 FIP-600 FlexIntfPltfm Rtr Mod	JG360A
• min=0 \ max=2 SFP 1G • Min=0 \ Max=2 HIM Modules • 2 - 2GB DDR3 SDRAM Included (JG482A)	See Configuration Note:1, 4

HP 6600 48p GbE SFP Svc Agg Pltfm Mod	JG556A
• min=0 \ max=48 SFP 100M/1G • 2 - 1GB DDR2 SDRAM Included (JC071A)	See Configuration Note: 2

HP 6600 24-port GbE SFP Service Aggregation Platform Module JC568A

Configuration

• min=0 \ max=24 SFP 100M/1G	See Configuration Note:2
HP HSR6800 4p 10GbE SvcAgg Pltfm Rtr Mod	JG366A See Configuration Note:5
• min=0 \ max=4 SFP+ 10	
• 2 - 2GB DDR3 SDRAM Included (JG482A)	
HP HSR6808 SFE-X1 Swch Fbrc Engn Rtr Mod	JG365A See Configuration Note:3
HP 6600 48-port Gig-T Service Aggregation Platform Module	JC567A
• No Transceivers	
• 2 - 1GB DDR2 SDRAM Included (JC071A)	
HP 6600 FIP-110 Flexible Interface Platform Module	JC166B See Configuration Note:1, 7
• min=0 \ max=2 SFP \\ Min=0 \ Max=4 MIM Modules	
• 2 - 1GB DDR2 SDRAM Included (JC071A)	
HP 6600 FIP-210 Flexible Interface Platform Module	JC167B See Configuration Note:1, 6
• min=0 \ max=2 SFP \\ Min=0 \ Max=2 HIM Modules or 2 MIM Modules or 1 Each	
• 2 - 1GB DDR2 SDRAM Included (JC071A)	
HP HSR6800 FIP-300 Flex Int Platform Mod	JG671A See Configuration Note:1, 8
• 12 GE combo min=0 \ max=12 SFP 1G	
• 1 HIM/MIM slot supports both HIM and MIM Min=0 \ Max=1 HIM Modules or 1 MIM	
• 2 - 2GB DDR3 SDRAM Included (JG482A)	
HP HSR6800 FIP-310 Flex Int Platform Mod	JG672A See Configuration Note:1, 5, 8
• 4 GE combo min=0 \ max=4 SFP 1G	
• 2x10GE (SFP+) min=0 \ max=2 SFP+ 10G	
• 1 HIM/MIM slot supports both HIM and MIM Min=0 \ Max=1 HIM Modules or 1 MIM	
• 2 - 2GB DDR3 SDRAM Included (JG482A)	
Note 1	The following Transceivers installs into this Service Module: (Use #0D1 if router is CTO) - if applicable
	HP X120 1G SFP LC SX Transceiver JD118B
	HP X120 1G SFP LC LX Transceiver JD119B
	HP X125 1G SFP LC LH40 1310nm Transceiver JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver JD062A
	HP X125 1G SFP LC LH70 Transceiver JD063B
	HP X120 1G SFP LC LH100 Transceiver JD103A
	HP X120 1G SFP LC BX 10-U Transceiver JD098B

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	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
Note 2	The following Transceivers install into this Service Module: (Use #0D1 if router is CTO) - if applicable	
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
	HP X125 1G SFP LC LH70 Transceiver	JD063B
	HP X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
	HP X115 100M SFP LC BX 10-U Transceiver	JD100A
	HP X115 100M SFP LC BX 10-D Transceiver	JD101A
	HP X120 1G SFP RJ45 T Transceiver	JD089B
Note 3	Only supported on the HSR6808.	
Note 4	The following Modules installs into this Service Module: Max = 2 (Use #0D1 if router is CTO) - if applicable	
	HP 6600 4GbE WAN HIM Router Module	JC163A
	HP 6600 8GbE WAN HIM Router Module	JC164A
	HP 6600 4-port GbE SFP HIM Router Module	JC171A
	HP 6600 4-port OC-3 / 2-port OC-12 POS HIM Router Module	JC172A
	HP 6600 1-port OC-48/STM-16 POS (SFP) Router Module	JC494A
	HP 6600 2-port OC-3 / 1-port OC-12 POS HIM Router Module	JC173A
	HP 6600 8-port GbE SFP HIM Router Module	JC174A
	HP 6600 1-port 10GbE XFP HIM Router Module	JC168A
	HP A6600 8-port 10/100Base-T HIM Module	JC575A
	HP 6600 8-port OC-3c/OC-12c POS / GbE SFP HIM Module	JG673A
Note 5	The following Transceivers install into this Module: (Use #0D1 if switch is CTO)	
	HP X130 10G SFP+ LC SR Transceiver	JD092B
	HP X130 10G SFP+ LC LR Transceiver	JD094B
	HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
Note 6	The following Modules installs into this Service Module: Max = 2 (Use #0D1 if router is CTO) - if applicable	
	HP MSR 2-port Enhanced Serial MIM Mod	JD540A
	HP MSR 4-port Enhanced Serial MIM Module	JD541A
	HP MSR 8-port Sync/Async Interface Enhanced Module	JD552A
	HP MSR 1-port FT3/CT3 MIM Module	JD628A
	HP 6600 8-port T1 MIM Router Module	JC160A
	HP 6600 8-port Fractional T1 MIM Router Module	JC159A
	HP 6600 1-port OC-3 (E1/T1) CPOS HIM Router Module	JC161A
	HP 6600 2-port OC-3 E1/T1 CPOS HIM Router Module	JC162A
	HP 6600 4GbE WAN HIM Router Module	JC163A
	HP 6600 8GbE WAN HIM Router Module	JC164A

Configuration

HP 6600 2-port OC-3 E3/T3 CPOS HIM Router Module	JC169A
HP 6600 1-port OC-3 (E3/T3) CPOS HIM Router Module	JC170A
HP 6600 4-port GbE SFP HIM Router Module	JC171A
HP 6600 4-port OC-3 / 2-port OC-12 POS HIM Router Module	JC172A
HP 6600 1-port OC-48/STM-16 POS (SFP) Router Module	JC494A
HP 6600 2-port OC-3 / 1-port OC-12 POS HIM Router Module	JC173A
HP 6600 8-port GbE SFP HIM Router Module	JC174A
HP 6600 1-port 10GbE XFP HIM Router Module	JC168A
HP 6600 1-port OC-3c/STM-1c ATM HIM Router Module	JC175A
HP 6600 2-port OC-3c/STM-1c ATM SFP Router Module	JC495A
HP A6600 8-port 10/100Base-T HIM Module	JC575A
HP A6600 2-port OC-48c/STM-16c RPR SFP HIM Module	JC576A
HP MSR 8-port Fractional E1 MIM Module	JF255A
HP MSR 1-port FE3/CE3 MIM Module	JD630A
HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module	JD563A
HP 6600 8-port OC-3c/OC-12c POS / GbE SFP HIM Module	JG673A

Note 7

The following Modules installs into this Service Module: Max = 4 (Use #0D1 if router is CTO) - if applicable

HP MSR 2-port Enhanced Serial MIM Mod	JD540A
HP MSR 4-port Enhanced Serial MIM Module	JD541A
HP MSR 8-port Sync/Async Interface Enhanced Module	JD552A
HP MSR 1-port FT3/CT3 MIM Module	JD628A
HP 6600 8-port T1 MIM Router Module	JC160A
HP 6600 8-port Fractional T1 MIM Router Module	JC159A
HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module	JD563A
HP MSR 8-port Fractional E1 MIM Module	JF255A
HP MSR 1-port FE3/CE3 MIM Module	JD630A

MIM and HIM router Modules

System (std 0 // max 2 or 4) User Selection (min 0 // max 2 or 4) per Service Module (See Service Modules for Port information)

HP 6600 1p OC-3 (E1/T1) CPOS HIM Rtr Mod

- min=0 \ max=1 SFP
- JC161A
See Configuration Note:1

HP 6600 2p OC-3 E1/T1 CPOS HIM Rtr Mod

- min=0 \ max=2 SFP
- JG358A
See Configuration Note:1

HP 6600 2p OC-3 E3/T3 CPOS HIM Rtr Mod

- min=0 \ max=2 SFP
- JC169A
See Configuration Note:1

HP 6600 1p OC-3 (E3/T3) CPOS HIM Rtr Mod

- min=0 \ max=1 SFP
- JC170A
See Configuration Note:1

HP 6600 4-port GbE SFP HIM Router Module

JC171A

Configuration

• min=0 \ max=4 SFP	See Configuration Note:2
HP 6600 4p OC-3/2p OC-12 POS HIM Rtr Mod • min=0 \ max=4 SFP	JC172A See Configuration Note:1, 3, 6
HP 6600 2p OC-3/1p OC-12 POS HIM Rtr Mod • min=0 \ max=2 SFP	JC173A See Configuration Note:1, 3, 7
HP 6600 1-p OC-48/STM-16 POS SFP Rtr Mo • min=0 \ max=2 SFP	JC494A See Configuration Note:4
HP 6600 8-port GbE SFP HIM Router Module • min=0 \ max=8 SFP	JC174A See Configuration Note:2
HP 6600 1p OC-3c/STM-1c ATM HIM Rtr Mod • min=0 \ max=1 SFP	JC175A See Configuration Note:1
HP 6600 2p OC-3c/STM-1c ATM SFP Rtr Mod • min=0 \ max=2 SFP	JC495A See Configuration Note:1
HP 6600 1p 10GbE XFP HIM Rtr Module • min=0 \ max=1 XFP	JC168A See Configuration Note:5
HP A6600 2-p OC48c RPR SFP HIM Module • min=0 \ max=2 SFP	JC576A See Configuration Note:4
HP 2-Port Enhanced Serial MIM A-MSR Mod • min=0 \ max=2 Serial Port Cable	JD540A See Configuration Note:8
HP 4-Port Enhanced Serial MIM A-MSR Mod • min=0 \ max=4 Serial Port Cable	JD541A See Configuration Note:8
HP 8p Enh Sync/Async Interface A-MSR Mod • min=0 \ max=8 Serial Port Cable	JD552A See Configuration Note:8
HP 1-Port FT3/CT3 MIM A-MSR Module	JD628A

Configuration

• min=0 \ max=2 E3/T3 Cable	See Configuration Note:10
HP 6600 8-port T1 MIM Router Module • No Transceivers	JC160A See Configuration Note:11
HP 6600 8-port Fractional T1 MIM Rtr Mod • No Transceivers	JC159A See Configuration Note:11
HP 6600 4GbE WAN HIM Router Module • No Transceivers	JC163A
HP 6600 8GbE WAN HIM Router Module • No Transceivers	JC164A
HP 6600 8-p OC-3/12c POS/GbE SFP HIM Mod • min=0 \ max=8 SFP	JG673A See Configuration Note: 3, 12
HP A6600 8-port 10/100Base-T HIM Module • No Transceivers	JC575A
HP A-MSR 8-p E1/CE1/PRI (75ohm) MIM Mod • must select 1 8-port E1 Cable	JD563A See Configuration Note:9
HP MSR 8-port E1/Fractional E1 (75ohm) MIM Module • must select 1 8-port E1 Cable	JF255A See Configuration Note:9
HP MSR 1-port FE3/CE3 MIM Module • min=0 \ max=2 E3/T3 Cable	JD630A See Configuration Note:10

Configuration Rules:

Note 1	The following Transceivers install into this Module: (Use #0D1 if router is CTO) - if applicable
	HP X115 100M SFP LC FX Transceiver JD102B
	HP MSR 4-port Enhanced Serial MIM Module JD541A
	HP X110 100M SFP LC LH40 Transceiver JD090A
	HP X110 100M SFP LC LH80 Transceiver JD091A
Note 2	The following Transceivers install into this Module: (Use #0D1 if router is CTO) - if applicable

Configuration

HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X115 100M SFP LC BX 10-U Transceiver	JD100A
HP X115 100M SFP LC BX 10-D Transceiver	JD101A
HP X115 100M SFP LC FX Transceiver	JD102B
HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A
Note 3	The following Transceivers install into this Module (Use #OD1 if router is CTO) - if applicable
	HP X120 622M SFP LC LX 15km Transceiver JD829A
	HP X120 622M SFP LC LH 80km 1550 Transceiver JD831A
	HP X120 622M SFP LC LH 40km 1310 Transceiver JD830A
Note 4	The following Transceivers install into this Module: (Use #OD1 if router is CTO) - if applicable
	HP X160 2.5G SFP LC 2km Transceiver JD084A
	HP X160 2.5G SFP LC 15km Transceiver JD085A
	HP X160 2.5G SFP LC 40km Transceiver JD086A
	HP X160 2.5G SFP LC 80km Transceiver JD087A
Note 5	The following Transceivers install into this Module: (Use #OD1 if router is CTO) - if applicable
	HP X135 10G XFP LC ER Transceiver JD121A
	HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver JD108B
	HP X130 10G XFP LC SR Transceiver JD117B
Note 6	min=0 \ max=4 SFP (JD102B,JD120B,JD090A,JD091A) min=0 \ max=2 SFP (JF829A,JF831A,JF830A) X110 100M LC Transceiver (JD102B,JD120B,JD090A and JD091A) and X120 622M LC Transceiver (JF829A,JF831A and JF830A) cannot be used at the same time
Note 7	min=0 \ max=2 SFP (JD102B,JD120B,JD090A,JD091A) min=0 \ max=1 SFP (JF829A,JF831A,JF830A) X110 100M LC Transceiver (JD102B,JD120B,JD090A and JD091A) and X120 622M LC Transceiver (JF829A,JF831A and JF830A) cannot be used at the same time
Note 8	The following Cables install into this Module:
	HP X200 V.24 DTE 3m Serial Port Cable JD519A
	HP X200 V.24 DCE 3m Serial Port Cable JD521A
	HP X200 V.35 DTE 3m Serial Port Cable JD523A
	HP X200 V.35 DCE 3m Serial Port Cable JD525A
	HP X200 X.21 DTE 3m Serial Port Cable JD527A
	HP X200 X.21 DCE 3m Serial Port Cable JD529A
	HP X260 RS449 3m DTE Serial Port Cable JF825A

Configuration

	HP X260 RS449 3m DCE Serial Port Cable	JF826A
	HP X260 RS530 3m DTE Serial Port Cable	JF827A
	HP X260 RS530 3m DCE Serial Port Cable	JF828A
Note 9	The following Cable install into this Module: HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A
Note 10	The following E3/T3 Cable and Connector install into this Module: HP X260 T3/E3 Router Cable HP X260 E3-30 E3/T3 Router Cable	JD531A JD533A
Note 11	The following Cable installs into these Modules: HP X260 8T1 RJ45 3m Router Cable	JD639A
Note 12	The following Transceivers install into this Module: (Use #OD1 if router is CTO) - if applicable HP X120 1G SFP LC SX Transceiver HP X120 1G SFP LC LX Transceiver HP X125 1G SFP LC LH40 1310nm Transceiver HP X120 1G SFP LC LH40 1550nm Transceiver HP X125 1G SFP LC LH70 Transceiver HP X120 1G SFP LC LH100 Transceiver HP X120 1G SFP LC BX 10-U Transceiver HP X120 1G SFP LC BX 10-D Transceiver HP X115 100M SFP LC FX Transceiver HP X110 100M SFP LC LX Transceiver HP X110 100M SFP LC LH40 Transceiver HP X110 100M SFP LC LH80 Transceiver HP X115 100M SFP LC BX 10-U Transceiver HP X115 100M SFP LC BX 10-D Transceiver	JD118B JD119B JD061A JD062A JD063B JD103A JD098B JD099B JD102B JD120B JD090A JD091A JD100A JD101A

Transceivers

SFP Transceivers

HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A
HP X110 100M SFP LC BX 10-U Transceiver	JD100A
HP X110 100M SFP LC BX 10-D Transceiver	JD101A
HP X115 100M SFP LC FX Transceiver	JD102B
HP X120 622M SFP LC LX 15km Transceiver	JF829A
HP X120 622M SFP LC LH 80km 1550 XCVR	JF831A

Configuration

HP X120 622M SFP LC LH 40km 1310 XCVR	JF830A
HP X125 1G SFP LC LH40 1310nm XCVR	JD061A
HP X120 1G SFP LC LH40 1550nm XCVR	JD062A
HP X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X160 2.5G SFP LC 2km Transceiver	JD084A
HP X160 2.5G SFP LC 15km Transceiver	JD085A
HP X160 2.5G SFP LC 40km Transceiver	JD086A
HP X160 2.5G SFP LC 80km Transceiver	JD087A

SFP+ Transceivers

HP X130 10G SFP+ LC SR Transceiver	JD092B
HP X130 10G SFP+ LC LR Transceiver	JD094B
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A

XFP Transceivers

HP X135 10G XFP LC ER Transceiver	JD121A
HP X130 10G XFP LC LR 1310nm Transceiver	JD108B
HP X130 10G XFP LC SR Transceiver	JD117B

Cables

HP X200 V.24 DTE 3m Serial Port Cable	JD519A
HP X200 V.24 DCE 3m Serial Port Cable	JD521A

Configuration

HP X200 V.35 DTE 3m Serial Port Cable	JD523A
HP X200 V.35 DCE 3m Serial Port Cable	JD525A
HP X200 X.21 DTE 3m Serial Port Cable	JD527A
HP X200 X.21 DCE 3m Serial Port Cable	JD529A
HP X260 RS449 3m DTE Serial Port Cable	JF825A
HP X260 RS449 3m DCE Serial Port Cable	JF826A
HP X260 RS530 3m DTE Serial Port Cable	JF827A
HP X260 RS530 3m DCE Serial Port Cable	JF828A
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable	JD511A
HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A
HP X260 T3/E3 Router Cable	JD531A
HP X260 E3-30 E3/T3 Router Cable	JD533A
HP X260 8T1 RJ45 3m Router Cable	JD639A

Router Enclosure Options

Memory

HP X610 1GB DDR2 SDRAM Memory	JC071A
• used as spare only.	
HP A-Series 2GB DDR2 SDRAM	JG205A See Configuration Note:1
HP X610 2G VLP DDR3 SDRAM Memory	JG482A
• Used as spare only.	

Configuration Rules:

- Note 1 This Memory is added to the following components:
JC166B - HP 6600 FIP-110 Flexible Interface Platform Module
JG671A - HP HSR6800 FIP-300 Flex Int Platform Mod
JG672A - HP HSR6800 FIP-310 Flex Int Platform Mod

Configuration

JC167B - HP 6600 FIP-210 Flexible Interface Platform Module
JC567A - HP 6600 24-port GbE SFP Service Aggregation Platform Module
JC568A - HP 6600 48-port Gig-T Service Aggregation Platform Module

- Note 2 This Memory is supported in the following components:
JG360A - HP HSR6800 FIP-600 FlexIntfPltfm Rtr Mod
JG364A - HP HSR6800 RSE-X2 Router MPU
JG366A - HP HSR6800 4p 10GbE SvcAgg Pltfm Rtr Mod

Fan Kits

HP HSR6802 Router Spare Fan Assembly	JG367A See Configuration Note:1
HP HSR6804 Router Spare Fan Assembly	JG368A See Configuration Note:2
HP HSR6808 Router Spare Fan Assembly	JG369A See Configuration Note:3

Configuration Rules

- Note 1 This Fan is supported on the JG361A - HP HSR6802 Router Chassis only.
Note 2 This Fan is supported on the JG362A - HP HSR6804 Router Chassis only.
Note 3 This Fan is supported on the JG363A - HP HSR6808 Router Chassis only.

Compact Flash cards

HP X600 1G Compact Flash Card used as spare only.	JC684A See Configuration Note:1
HP X600 512M Compact Flash Card used as spare only.	JC685A See Configuration Note:1

Configuration Rules

- Note 1 Supported in JG364A - HP HSR6800 RSE-X2 Router MPU only.

Opacity Shield Kit

Configuration

System (std 0 // max 1) User Selection (min 0 // max 1)

HP HSR6802 Router Opcty Shld Kit

JG675A

NOTE:

See

Supported on JG361A

Configuration
Note:1

HP HSR6804 Router Opcty Shld Kit

JG676A

NOTE:

See

Supported on JG362A

Configuration
Note:1

HP HSR6808 Router Opcty Shld Kit

JG677A

NOTE:

See

Supported on JG363A

Configuration
Note:2

Configuration Rules

Note 1 If selected with a CTO Router Solution, Quantity 1 of JG585A#B01 must also be ordered.

Note 2 If selected with a CTO Router Solution, Quantity 1 of JG586A#B01 must also be ordered.

Tamper Evidence Labels

HP 12mm x 60mm Tmpr-Evidence (30) Lbl

JG585A

NOTE:

See

Supported on JG361A or JG362A

Configuration
Note:1

HP 12mm x 60mm Tmpr-Evidence (100) Lbl

JG586A

NOTE:

See

Supported on JG363A

Configuration
Note:2

Configuration Rules

Note 1 If selected with a CTO Router Solution, Quantity 1 of JG675A#B01 or JG676A#B01 must also be ordered.

Note 2 If selected with a CTO Router Solution, Quantity 1 of JG677A#B01 must also be ordered.

Remarks: Each JG675A or JG676A would use 1 of JG585A.
Each JG677A would use 1 of JG586A.

Technical Specifications

HP HSR6802 Router Chassis (JG361A)

I/O ports and slots	2 SAP slots 4 HIM slots 8 MIM slots or or , or a combination
Additional ports and slots	2 MPU slots
Physical characteristics	Dimensions 17.17(w) x 18.9(d) x 8.66(h) in (43.6 x 48 x 22 cm) (5U height) Weight 86.2 lb (39.1 kg), Fully loaded
Memory and processor	Processor Multicore PowerPC @ 1.0 GHz, 4 GB DDR3 SDRAM; storage: 2 CF, 1 GB built in, plus optional external 1 GB
Mounting	EIA-standard 19 in. rack
Performance	Throughput up to 120 million pps Routing table size 4000000 entries (IPv4), 2000000 entries (IPv6) Forwarding table size 1000000 entries (IPv4), 1000000 entries (IPv6) Backplane bandwidth 1024 Gbps
Environment	Operating temperature 32°F to 113°F (0°C to 45°C) Operating relative humidity 5% to 95% Altitude up to 13,123 ft (4 km)
Electrical characteristics	Voltage 100-240 VAC Maximum power rating 521 W
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; IEC 60950-1; FDA 21 CFR Subchapter J; EN60825-2:2004+A1:2007
Emissions	EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 301 489-1; EN 301 489-17; ICES-003 Class A; CISPR 24; EN 61000-6-1; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; FCC (CFR 47, Part 15) Class A; KN22 Class A; VCCI-3 CLASS A; VCCI-4 CLASS A; ETSI EN 300 386
Immunity	Generic ETSI EN 300 386 V1.3.3; KN24 EN EN 55024, CISPR 24
Management	command-line interface; out-of-band management; SNMP Manager; Telnet; RMON1; terminal interface (serial RS-232C); Ethernet Interface MIB
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP HSR6804 Router Chassis (JG362A)

Ports	4 SAP slots 8 HIM slots 16 MIM slots or or , or a combination
Additional ports and slots	2 MPU slots
Physical characteristics	Dimensions 17.17(w) x 18.9(d) x 12.13(h) in (43.6 x 48 x 30.81 cm) (7U height) Weight 111.99 lb (50.8 kg), Fully loaded
Memory and processor	Processor Multicore PowerPC @ 1.0, 4 GB DDR3 SDRAM; storage: 2 CF, 1 GB built in, plus optional external 1 GB
Mounting	EIA-standard 19 in. rack
Performance	Throughput up to 240 million pps Routing table size 4000000 entries (IPv4), 2000000 entries (IPv6) Forwarding table size 1000000 entries (IPv4), 1000000 entries (IPv6) Backplane bandwidth 1024 Gbps
Environment	Operating temperature 32°F to 113°F (0°C to 45°C)

Technical Specifications

	Operating relative humidity	5% to 95%
	Altitude	up to 13,123 ft (4 km)
Electrical characteristics	Voltage	100-240 VAC
	Maximum power rating	851 W
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; IEC 60950-1; FDA 21 CFR Subchapter J; EN60825-2:2004+A1:2007	
Emissions	EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 301 489-1; EN 301 489-17; ICES-003 Class A; CISPR 24; EN 61000-6-1; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; FCC (CFR 47, Part 15) Class A; KN22 Class A; VCCI-3 CLASS A; VCCI-4 CLASS A; ETSI EN 300 386	
Immunity	Generic	ETSI EN 300 386 V1.3.3; KN24
	EN	EN 55024, CISPR 24
Management	command-line interface; out-of-band management; SNMP Manager; Telnet; RMON1; terminal interface (serial RS-232C); Ethernet Interface MIB	
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

HP HSR6808 Router Chassis (JG363A)

I/O ports and slots	8 SAP slots 16 HIM slots 32 MIM slots or or , or a combination 2 MPU slots 1 switch fabric slot	
Physical characteristics	Dimensions	17.17(w) x 18.9(d) x 34.88(h) in (43.6 x 48 x 88.6 cm) (20U height)
	Weight	224.76 lb (101.95 kg), Fully loaded
Memory and processor	Processor	Multicore PowerPC @ 1.0 GHz, 4 GB DDR3 SDRAM; storage: 2 CF, 1 GB built in, plus optional external 1 GB
Mounting	EIA-standard 19 in. rack	
Performance	Throughput	up to 420 million pps
	Routing table size	4000000 entries (IPv4), 2000000 entries (IPv6)
	Forwarding table size	1000000 entries (IPv4), 1000000 entries (IPv6)
	Backplane bandwidth	2048 Gbps
Environment	Operating temperature	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	5% to 95%
	Altitude	up to 13,123 ft (4 km)
Electrical characteristics	Voltage	100-240 VAC
	Maximum power rating	1816 W
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; IEC 60950-1; FDA 21 CFR Subchapter J; EN60825-2:2004+A1:2007	
Emissions	EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 301 489-1; EN 301 489-17; ICES-003 Class A; CISPR 24; EN 61000-6-1; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; FCC (CFR 47, Part 15) Class A; KN22 Class A; VCCI-3 CLASS A; VCCI-4 CLASS A; ETSI EN 300 386	
Immunity	Generic	ETSI EN 300 386 V1.3.3; KN24
	EN	EN 55024, CISPR 24
Management	command-line interface; out-of-band management; SNMP Manager; Telnet; RMON1; terminal interface (serial RS-232C); Ethernet Interface MIB	

Technical Specifications

Notes	Switch fabric is optional <ul style="list-style-type: none">When a switch fabric is used, I/O slot capacity is reduced to 7 SAP, or 14 HIM, or 28 MIM slots, or a combination
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
Standards and protocols (applies to all products in series)	BGP RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping RFC 2796 BGP Route Reflection RFC 2842 Capability Advertisement with BGP-4 RFC 2858 BGP-4 Multi-Protocol Extensions RFC 2918 Route Refresh Capability Denial of service protection CPU DoS Protection Rate Limiting by ACLs Device management RFC 1155 Structure and Mgmt Information (SMIV1) RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 1901 (Community based SNMPv2) RFC 1901-1907 SNMPv2c, SMIV2 and Revised MIB-II RFC 1902 (SNMPv2) RFC 1908 (SNMP v1/2 Coexistence) RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0 RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1 RFC 2271 FrameWork RFC 2452 MIB for TCP6 RFC 2454 MIB for UDP6 RFC 2573 (SNMPv3 Applications) RFC 2576 (Coexistence between SNMP V1, V2, V3) RFC 2578-2580 SMIV2 RFC 2579 (SMIV2 Text Conventions) RFC 2580 (SMIV2 Conformance) RFC 2819 (RMON groups Alarm, Event, History and Statistics only) RFC 2819 RMON RFC 3410 (Management Framework) RFC 3416 (SNMP Protocol Operations v2) RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3768 Virtual Router Redundancy Protocol (VRRP) RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS RFC 4213 Basic IPv6 Transition Mechanisms IP multicast RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3 RFC 3973 PIM Dense Mode RFC 4601 PIM Sparse Mode IPv6 RFC 1350 TFTP RFC 1881 IPv6 Address Allocation Management RFC 1886 DNS Extension for IPv6 RFC 1887 IPv6 Unicast Address Allocation Architecture RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2375 IPv6 Multicast Address Assignments RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration RFC 2463 ICMPv6 RFC 2464 Transmission of IPv6 over Ethernet Networks

Technical Specifications

RFC 3417 (SNMP Transport Mappings)	RFC 2472 IP Version 6 over PPP
Multiple Configuration Files	RFC 2473 Generic Packet Tunneling in IPv6
Multiple Software Images	RFC 2475 IPv6 DiffServ Architecture
SNMP v3 and RMON RFC support	RFC 2529 Transmission of IPv6 Packets over IPv4
SSHv1/SSHv2 Secure Shell	RFC 2545 Use of MP-BGP-4 for IPv6
TACACS/TACACS+	RFC 2553 Basic Socket Interface Extensions for IPv6
General protocols	General protocols
IEIEEE 802.1ad Q-in-Q	RFC 2710 Multicast Listener Discovery (MLD) for IPv6
IEEE 802.1ag Service Layer OAM	RFC 2711 IPv6 Router Alert Option
IEEE 802.1ah Provider Backbone Bridges	RFC 2740 OSPFv3 for IPv6
IEEE 802.1AX-2008 Link Aggregation	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
IEEE 802.1D MAC Bridges	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
IEEE 802.1p Priority	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
IEEE 802.1Q (GVRP)	RFC 3162 RADIUS and IPv6
IEEE 802.1Q VLANs	RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses
IEEE 802.1s (MSTP)	RFC 3307 IPv6 Multicast Address Allocation
IEEE 802.1s Multiple Spanning Trees	RFC 3315 DHCPv6 (client and relay)
IEEE 802.1v VLAN classification by Protocol and Port	RFC 3363 DNS support
IEEE 802.1w Rapid Reconfiguration of Spanning Tree	RFC 3484 Default Address Selection for IPv6
IEEE 802.1X PAE	RFC 3493 Basic Socket Interface Extensions for IPv6
IEEE 802.3 Type 10BASE-T	RFC 3513 IPv6 Addressing Architecture
IEEE 802.3ab 1000BASE-T	RFC 3542 Advanced Sockets API for IPv6
IEEE 802.3ac (VLAN Tagging Extension)	RFC 3587 IPv6 Global Unicast Address Format
IEEE 802.3ad Link Aggregation (LAG)	RFC 3596 DNS Extension for IPv6
IEEE 802.3ad Link Aggregation Control Protocol (LACP)	RFC 3810 MLdv2 (host joins only)
IEEE 802.3ae 10-Gigabit Ethernet	RFC 3810 MLdv2 for IPv6
IEEE 802.3ag Ethernet OAM	RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
IEEE 802.3ah Ethernet in First Mile over Point to Point Fiber - EFMF	RFC 4022 MIB for TCP
IEEE 802.3i 10BASE-T	RFC 4113 MIB for UDP
IEEE 802.3u 100BASE-X	RFC 4251 SSHv6 Architecture
IEEE 802.3x Flow Control	RFC 4252 SSHv6 Authentication
IEEE 802.3z 1000BASE-X	RFC 4252 SSHv6 Transport Layer
RFC 768 UDP	RFC 4253 SSHv6 Transport Layer
RFC 783 TFTP Protocol (revision 2)	RFC 4254 SSHv6 Connection
RFC 791 IP	RFC 4291 IP Version 6 Addressing Architecture
RFC 792 ICMP	RFC 4293 MIB for IP
RFC 793 TCP	RFC 4419 Key Exchange for SSH
RFC 826 ARP	RFC 4443 ICMPv6
RFC 854 TELNET	RFC 4541 IGMP & MLD Snooping Switch
RFC 855 Telnet Option Specification	RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 856 TELNET	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 0857 Telnet Echo Option	RFC 5340 OSPF for IPv6
RFC 858 Telnet Suppress Go Ahead Option	RFC 5340 OSPFv3 for IPv6
RFC 894 IP over Ethernet	RFC 5722 Handling of Overlapping IPv6 Fragments
RFC 896 Congestion Control in IP/TCP Internetworks	MIBs
RFC 906 TFTP Bootstrap	
RFC 925 Multi-LAN Address Resolution	
RFC 950 Internet Standard Subnetting Procedure	
RFC 951 BOOTP	
RFC 959 File Transfer Protocol (FTP)	

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RFC 1006 ISO transport services on top of the TCP:	IEEE 8021-PAE-MIB
Version 3	IEEE 8023-LAG-MIB
RFC 1027 Proxy ARP	RFC 1156 (TCP/IP MIB)
RFC 1034 Domain Concepts and Facilities	RFC 1212 Concise MIB Definitions
RFC 1035 Domain Implementation and Specification	RFC 1213 MIB II
RFC 1042 IP Datagrams	RFC 1229 Interface MIB Extensions
RFC 1058 RIPv1	RFC 1286 Bridge MIB
RFC 1071 Computing the Internet Checksum	RFC 1493 Bridge MIB
RFC 1091 Telnet Terminal-Type Option	RFC 1573 SNMP MIB II
RFC 1093 NSFNET routing architecture	RFC 1643 Ethernet MIB
RFC 1122 Host Requirements	RFC 1650 Ethernet-Like MIB
RFC 1141 Incremental updating of the Internet checksum	RFC 1657 BGP-4 MIB
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1724 RIPv2 MIB
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 1757 Remote Network Monitoring MIB
RFC 1171 Point-to-Point Protocol for the transmission of multi-protocol datagrams over Point-to-Point links	RFC 1850 OSPFv2 MIB
RFC 1191 Path MTU discovery	RFC 1907 SNMPv2 MIB
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2011 SNMPv2 MIB for IP
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets	RFC 2012 SNMPv2 MIB for TCP
RFC 1253 (OSPF v2)	RFC 2013 SNMPv2 MIB for UDP
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2021 RMONv2 MIB
RFC 1305 NTPv3	RFC 2096 IP Forwarding Table MIB
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2233 Interface MIB
RFC 1321 The MD5 Message-Digest Algorithm	RFC 2452 IPV6-TCP-MIB
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2454 IPV6-UDP-MIB
RFC 1333 PPP Link Quality Monitoring	RFC 2465 IPv6 MIB
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2466 ICMPv6 MIB
RFC 1349 Type of Service	RFC 2571 SNMP Framework MIB
RFC 1350 TFTP Protocol (revision 2)	RFC 2572 SNMP-MPD MIB
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2574 SNMP USM MIB
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2618 RADIUS Client MIB
RFC 1382 SNMP MIB Extension for the X.25 Packet Layer	RFC 2620 RADIUS Accounting Client MIB
RFC 1389 RIPv2 MIB Extension	RFC 2665 Ethernet-Like-MIB
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 2668 802.3 MAU MIB
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 2688 MAU-MIB
RFC 1519 CIDR	RFC 2737 Entity MIB (Version 2)
RFC 1531 Dynamic Host Configuration Protocol	RFC 2787 VRRP MIB
RFC 1533 DHCP Options and BOOTP Vendor Extensions	RFC 2819 RMON MIB
RFC 1534 DHCP/BOOTP Interoperation	RFC 2863 The Interfaces Group MIB
	RFC 2925 Ping MIB
	RFC 2932IP (Multicast Routing MIB)
	RFC 2933 IGMP MIB
	RFC 3273 HC-RMON MIB
	RFC 3414 SNMP-User based-SM MIB
	RFC 3415 SNMP-View based-ACM MIB
	RFC 3418 MIB for SNMPv3
	RFC 3813 MPLS LSR MIB
	RFC 3814 MPLS FTN MIB
	RFC 3815 MPLS LDP MIB
	RFC 3826 AES for SNMP's USM MIB
	RFC 4113 UDP MIB
	RFC 4133 Entity MIB (Version 3)
	RFC 4221 MPLS FTN MIB
	LLDP-EXT-DOT1-MIB
	LLDP-EXT-DOT3-MIB
	LLDP-MIB

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RFC 1541 DHCP	Network management
RFC 1542 BOOTP Extensions	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	IEEE 802.1D (STP)
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 1098 A Simple Network Management Protocol (SNMP)
RFC 1577 Classical IP and ARP over ATM	RFC 1155 Structure of Management Information
RFC 1631 NAT	RFC 1157 SNMPv1
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 1215 SNMP Generic traps
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
RFC 1662 PPP in HDLC-like Framing	RFC 1901 SNMPv2 Introduction
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 1902 SNMPv2 Structure
RFC 1700 Assigned Numbers	RFC 1903 SNMPv2 Textual Conventions
RFC 1701 Generic Routing Encapsulation	RFC 1904 SNMPv2 Conformance
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 1905 SNMPv2 Protocol Operations
RFC 1721 RIP-2 Analysis	RFC 1906 SNMPv2 Transport Mappings
RFC 1722 RIP-2 Applicability	RFC 1918 Private Internet Address Allocation
RFC 1723 RIP v2	RFC 2272 SNMPv3 Management Protocol
RFC 1812 IPv4 Routing	RFC 2273 SNMPv3 Applications
RFC 1829 The ESP DES-CBC Transform	RFC 2274 USM for SNMPv3
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 2275 VACM for SNMPv3
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 2570 SNMPv3 Overview
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0	RFC 2571 SNMP Management Frameworks
RFC 1973 PPP in Frame Relay	RFC 2572 SNMPv3 Message Processing
RFC 1974 PPP Stac LZS Compression Protocol	RFC 2573 SNMPv3 Applications
RFC 1981 Path MTU Discovery for IP version 6	RFC 2574 SNMPv3 User-based Security Model (USM)
RFC 1990 The PPP Multilink Protocol (MP)	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 2576 Coexistence between SNMP versions
RFC 2082 RIP-2 MD5 Authentication	RFC 2578 SMIv2
RFC 2091 Trigger RIP	RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 2104 HMAC: Keyed-Hashing for Message Authentication	RFC 2819 Remote Network Monitoring Management Information Base
RFC 2131 DHCP	RFC 3164 BSD syslog Protocol
RFC 2132 DHCP Options and BOOTP Vendor Extensions	RFC 3176 sFlow
RFC 2138 Remote Authentication Dial In User Service (RADIUS)	RFC 3411 SNMP Management Frameworks
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 3412 SNMPv3 Message Processing
RFC 2209 Resource ReSerVation Protocol (RSVP) -- Version 1 Message Processing Rules	RFC 3414 SNMPv3 User-based Security Model (USM)
RFC 2236 IGMP Snooping	RFC 3415 SNMPv3 View-based Access Control Model VACM
RFC 2246 The TLS Protocol Version 1.0	ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
RFC 2252 Lightweight Directory Access Protocol (v3): Attribute Syntax Definitions	SNMPv1/v2
RFC 2280 Routing Policy Specification Language (RPSL)	SNMPv1/v2c
RFC 2283 MBGP	SNMPv1/v2c/v3
RFC 2284 EAP over LAN	OSPF
RFC 2338 VRRP	RFC 1246 Experience with OSPF
RFC 2364 PPP Over AAL5	RFC 1253 OSPFv2 MIB

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RFC 2374 An Aggregatable Global Unicast Address Format	RFC 1583 OSPFv2
RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 1587 OSPF NSSA
RFC 2453 RIPv2	RFC 1745 OSPF Interactions
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	RFC 1765 OSPF Database Overflow
RFC 2511 Internet X.509 Certificate Request Message Format	RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	RFC 2154 OSPF w/ Digital Signatures (Password, MD-5)
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels	RFC 2178 OSPFv2
RFC 2581 TCP Congestion Control	RFC 2328 OSPFv2
RFC 2616 HTTP Compatibility v1.1	RFC 2370 OSPF Opaque LSA Option
RFC 2622 Routing Policy Specification Language (RPSL)	RFC 3101 OSPF NSSA
RFC 2644 Directed Broadcast Control	RFC 3623 Graceful OSPF Restart
RFC 2661 L2TP	RFC 5340 OSPFv3 for IPv6
RFC 2663 NAT Terminology and Considerations	QoS/CoS
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	IEEE 802.1P (CoS)
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)	RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 2474 DiffServ precedence, with 4 queues per port
RFC 2716 PPP EAP TLS Authentication Protocol	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2747 RSVP Cryptographic Authentication	RFC 2474 DSCP DiffServ
RFC 2763 Dynamic Name-to-System ID mapping	RFC 2474, with 4 queues per port
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	RFC 2475 DiffServ Architecture
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2767 Dual Stacks IPv4 & IPv6	RFC 2597 DiffServ Assured Forwarding (AF)-partial support
RFC 2784 Generic Routing Encapsulation (GRE)	RFC 2598 DiffServ Expedited Forwarding (EF)
RFC 2787 Definitions of Managed Objects for VRRP	Security
RFC 2865 Remote Authentication Dial In User Service (RADIUS)	IEEE 802.1X Port Based Network Access Control
RFC 2866 RADIUS Accounting	RFC 1321 The MD5 Message-Digest Algorithm
RFC 2868 RADIUS Attributes for Tunnel Protocol Support	RFC 1334 PPP Authentication Protocols (PAP)
RFC 2869 RADIUS Extensions	RFC 1492 TACACS+
RFC 2878 PPP Bridging Control Protocol (BCP)	RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 2082 RIP-2 MD5 Authentication
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 2138 RADIUS Authentication
RFC 2973 IS-IS Mesh Groups	RFC 2139 RADIUS Accounting
RFC 2976 The SIP INFO Method	RFC 2209 RSVP-Message Processing
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	RFC 2246 Transport Layer Security (TLS)
RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP)
RFC 3031 Multiprotocol Label Switching Architecture	RFC 2409 The Internet Key Exchange (IKE)
RFC 3032 MPLS Label Stack Encoding	RFC 2459 Internet X.509 Public Key Infrastructure Certificate and CRL Profile
RFC 3036 LDP Specification	RFC 2548 Microsoft Vendor-specific RADIUS Attributes
	RFC 2716 PPP EAP TLS Authentication Protocol
	RFC 2818 HTTP Over TLS
	RFC 2865 RADIUS (client only)
	RFC 2865 RADIUS Authentication
	RFC 2866 RADIUS Accounting
	RFC 2867 RADIUS Accounting Modifications for

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RFC 3046 DHCP Relay Agent Information Option	Tunnel Protocol Support
RFC 3063 MPLS Loop Prevention Mechanism	RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 3065 Support AS confederation	RFC 2869 RADIUS Extensions
RFC 3137 OSPF Stub Router Advertisement	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication
RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels	RFC 3576 Dynamic Authorization Extensions to RADIUS
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels	RFC 3579 RADIUS Support For Extensible AuthenticationProtocol (EAP)
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)	RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines
RFC 3214 LSP Modification Using CR-LDP	Access Control Lists (ACLs)
RFC 3215 LDP State Machine	Guest VLAN for 802.1x
RFC 3246 Expedited Forwarding PHB	MAC Authentication
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)	Port Security
RFC 3277 IS-IS Transient Blackhole Avoidance	Secure Sockets Layer (SSL)
RFC 3279 Algorithms and Identifiers for the Internet	SSHv1 Secure Shell
X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile	SSHv1.5 Secure Shell
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile	SSHv1/SSHv2 Secure Shell
RFC 3392 Support BGP capabilities advertisement	SSHv2 Secure Shell
RFC 3410 Applicability Statements for SNMP	VPN
RFC 3416 Protocol Operations for SNMP	RFC 2403 - HMAC-MD5-96
RFC 3417 Transport Mappings for the Simple Network	RFC 2404 - HMAC-SHA1-96
Management Protocol (SNMP)	RFC 2405 - DES-CBC Cipher algorithm
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)	RFC 2407 - Domain of interpretation
RFC 3487 Graceful Restart Mechanism for LDP	RFC 2547 BGP/MPLS VPNs
RFC 3509 OSPF ABR Behavior	RFC 2764 A Framework for IP Based Virtual Private Networks
RFC 3526 More Modular Exponential (MODP)	RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
Diffie-Hellman groups for Internet Key Exchange (IKE)	RFC 2842 Capabilities Advertisement with BGP-4
RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering	RFC 2858 Multiprotocol Extensions for BGP-4
RFC 3567 Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication	RFC 2917 A Core MPLS IP VPN Architecture
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec	RFC 2918 Route Refresh Capability for BGP-4
RFC 3619 Ethernet Automatic Protection Switching (EAPS)	RFC 3107 Carrying Label Information in BGP-4
RFC 3623 Graceful OSPF Restart	RFC 4302 - IP Authentication Header (AH)
RFC 3704 Unicast Reverse Path Forwarding (URPF)	RFC 4303 - IP Encapsulating Security Payload (ESP)
	RFC 4305 - Cryptographic Algorithm Implementation Requirements for ESP and AH
	IPsec
	RFC 1828 IP Authentication using Keyed MD5
	RFC 2401 IP Security Architecture
	RFC 2402 IP Authentication Header
	RFC 2406 IP Encapsulating Security Payload
	RFC 2407 - Domain of interpretation
	RFC 2408 - Internet Security Association and Key Management Protocol (ISAKMP)
	RFC 2409 - The Internet Key Exchange
	RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
	RFC 2411 IP Security Document Roadmap
	RFC 2412 – OAKLEY
	RFC 2865 - Remote Authentication Dial In User

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Service (RADIUS)

IKEv1

RFC 2865 - Remote Authentication Dial In User

Service (RADIUS)

RFC 3748 - Extensible Authentication Protocol
(EAP)

Accessories

HP HSR6800 Router Series accessories

Security Modules	HP 6600 VPN Firewall Module	JC639A
Power Supply	HP 6600 650W AC Power Supply	JC492A
	HP 6600 650W DC Power Supply	JC493A
	HP HSR6800 1200W DC Power Supply	JG334A
	HP HSR6800 1200W AC Power Supply	JG335A
Router Modules	HP HSR6800 RSE-X2 Router Main Processing Unit	JG364A
	HP HSR6800 FIP-600 Flexible Interface Platform Router Module	JG360A
	HP HSR6800 FIP-310 Flexible Interface Platform Module	JG672A
	HP HSR6800 FIP-300 Flexible Interface Platform Module	JG671A
	HP 6600 FIP-210 Flexible Interface Platform Module	JC167B
	HP 6600 FIP-110 Flexible Interface Platform Module	JC166B
	HP HSR6800 4-port 10GbE SFP+ Service Aggregation Platform (SAP) Router Module	JG366A
	HP 6600 48-port GbE SFP Service Aggregation Platform Module	JG556A
	HP 6600 48-port Gig-T Service Aggregation Platform Module	JC567A
	HP 6600 24-port GbE SFP Service Aggregation Platform Module	JC568A
	HP 6600 1-port OC-3/STM-1 (E1/T1) CPOS SFP HIM Module	JC161A
	HP 6600 2-port OC-3/STM-1 (E1/T1) CPOS SFP HIM Module	JC162A
	HP 6600 4-port Gig-T HIM Module	JC163A
	HP 6600 8-port Gig-T HIM Module	JC164A
	HP 6600 1-port 10-GbE XFP HIM Module	JC168A
	HP 6600 2-port OC-3/STM-1 (E3/T3) CPOS SFP HIM Module	JC169A
	HP 6600 1-port OC-3/STM-1 (E3/T3) CPOS SFP HIM Module	JC170A
	HP 6600 4-port GbE SFP HIM Module	JC171A
	HP 6600 4-port OC-3c/STM-1c or 2-port OC-12c/STM-4c POS SFP HIM Module	JC172A
	HP 6600 2-port OC-3c/STM-1c or 1-port OC-12c/STM-4c POS SFP HIM Module	JC173A
	HP 6600 8-port GbE SFP HIM Module	JC174A
	HP 6600 1-port OC-3c/STM-1c ATM SFP HIM Module	JC175A
	HP 6600 1-port OC-48c/STM-16c POS/CPOS SFP HIM Module	JC494A
	HP 6600 2-port OC-3c/STM-1c ATM SFP HIM Module	JC495A
	HP 6600 8-port 10/100Base-T HIM Module	JC575A
	HP 6600 2-port OC-48c/STM-16c RPR SFP HIM Module	JC576A
	HP MSR 8-port T1/Fractional T1 MIM Module	JC159A
	HP MSR 8-port T1/CT1/PRI MIM Module	JC160A
	HP MSR 2-port Enhanced Serial MIM Mod	JD540A
	HP MSR 4-port Enhanced Sync/Async Serial MIM Module	JD541A
	HP MSR 8-port Enhanced Sync/Async Serial MIM Module	JD552A
	HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module	JD563A
	HP MSR 1-port T3/CT3/FT3 MIM Module	JD628A
	HP MSR 1-port FE3/CE3 MIM Module	JD630A
	HP MSR 8-port E1/Fractional E1 (75ohm) MIM Module	JD255A
Memory	HP X600 1G Compact Flash Card	JC684A
	HP X600 512M Compact Flash Card	JC685A
	HP X610 1GB DDR2 SDRAM Memory	JC071A

Accessories

	HP 2GB DDR2 SDRAM Memory	JG205A
	HP X610 2G VLP DDR3 SDRAM Memory	JG482A
HP HSR6802 Router Chassis (JG361A)	HP HSR6802 Router Spare Fan Assembly	JG367A
HP HSR6804 Router Chassis (JG362A)	HP HSR6804 Router Spare Fan Assembly	JG368A
HP HSR6808 Router Chassis (JG363A)	HP HSR6808 Router Spare Fan Assembly HP HSR6808 SFE-X1 Switch Fabric Engine Router Module	JG369A JG365A

Summary of Changes

Date	Version History	Action	Description of Change:
July 3, 2014	From Version 9 to 10	Change	Configuration menu updated.
June 10, 2014	From Version 8 to 9	Changed	Updated the Router Enclosure Options in the Configuration Information section.
February 18, 2014	From Version 7 to 8	Changed	Updated the Configuration Information section.
February 17, 2014	From Version 6 to 7	Changed	Updated the Configuration Information section.
January 31, 2014	From Version 5 to 6	Changed	Updated the Configuration Information section.
December 9, 2013	From Version 4 to 5	Changed	Box Level Integrated CTO Models, Rack Level Integration CTO Models, Internal Power Supplies, Modules, and Transceivers were revised in Configuration.
September 11, 2013	From Version 3 to 4	Changed	Configuration was revised.
May 27, 2013	From Version 2 to 3	Changed	Updated the Configuration Information.
April 10, 2013	From Version 1 to 2	Changed	Updated the Configuration section.

Summary of Changes

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